Call with the NRC Wednesday, March 1, 9:00 – 9:30 am

NRC Staff who have accepted the invite:
Kellee Jamerson, Environmental Review Branch
Cinthya Roman, Chief, Environmental Review Branch
Ronal Burrows, Uranium Recovery Licensing Branch
Bill Von Till, Chief, Uranium Recovery Licensing Branch
Elise Stritz, Uranium Recovery Licensing Branch
Ron Linton, Uranium Recovery Licensing Branch
John Saxton, Uranium Recovery Licensing Branch
James Webb, Uranium Recovery Licensing Branch
Tom Lancaster, Uranium Recovery Licensing Branch
Emily Monteith, Office of Regional Counsel

I. Provide background by explaining a couple UIC Regs:
§144.12 Prohibition of movement of fluid into underground sources of drinking water.
To prevent "movement of any contaminant into the underground source of drinking water" and take action if this occurs
Contaminant means any physical, chemical, biological, or radiological substance or matter in water.

40 CFR § 144.52(a)(9) states: "The Director *shall* impose on a case-by-case basis such additional conditions as are necessary to prevent the migration of fluids into underground sources of drinking water."

Clarify: Our compliance boundary is the aquifer exemption boundary, therefore an excursion is not a violation of any permit requirements unless it crosses the AE boundary into the USDW.

II. Permit Requirements new to the ISR industry:
The purpose of the following permit requirements is to demonstrate that no ISR contaminants will cross the AE boundary into USDWs.

- The permit requires Powertech to submit a **post-restoration monitoring plan** for EPA review and approval, which includes designating the location of a down-gradient compliance boundary and installation of post-restoration monitoring wells along that boundary.
- Powertech can choose the location of the down-gradient compliance boundary anywhere up-gradient from the down-gradient AE boundary and downgradient from the restored wellfield.
- The permit limits that must be met at the down-gradient compliance boundary are derived from statistical analysis of baseline monitoring data at the down-gradient compliance boundary monitoring wells.
- The statistical analysis of the baseline monitoring data is based on the *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance*

- Powertech has the option to wait until restored wellfield groundwater reaches the line of monitoring wells under the natural groundwater flow rate or pump the compliance boundary wells to bring the restored wellfield groundwater to the monitoring wells more quickly.

Additional monitoring related to excursions

- The permit refers to the NRC license for criteria determining if a monitoring well is on excursion. Monitoring frequency is weekly for wells on excursion.
- Once a monitoring well has been confirmed to be on excursion, the permit requires Powertech to monitor weekly not only the monitoring well on excursion, but also the nearest monitoring wells to the excursion-impacted monitoring well to identify if an excursion plume is expanding.
- The permit requires that additional monitoring wells be installed downgradient from an expanding excursion plume to verify the excursion will not cross the AE boundary.

Additional items to mention:

1. **Injection Zone Core Sample Collection from Monitoring Wells Located Down-gradient of Wellfields**
   a. The Permittee shall collect a minimum of two (2) cores per wellfield through the proposed injection interval while drilling the down-gradient perimeter monitoring wells ring wells or the Down-gradient Compliance Boundary Wells.
   b. Core shall be recovered and preserved in a manner to prevent further oxidation so as to be representative of in-situ geochemical conditions for use in columns tests as part of Post-Restoration Monitoring to verify that no ISR contaminants will cross the down-gradient aquifer exemption boundary.

After wellfield restoration is approved by the NRC so that restored wellfield water is available

Two column tests shall be conducted using the following leachates:

   i. One column test shall be conducted using unrestored wellfield groundwater taken from a wellfield in which uranium recovery has been completed, but before groundwater restoration has begun, and
   ii. The second column test shall be conducted using restored wellfield groundwater.

After these tests have been completed, a second round of tests shall be run on these same columns using groundwater collected from up-gradient perimeter monitoring wells to determine if any constituents adsorbed or precipitated on the column matrix during the previous column tests are released into solution by the up-gradient groundwater leachate.

For Burdock wellfields 6, 7 & 8 column testing must be performed before we issue the authorization to inject. Column test results will be part of the Injection Authorization Data Package

2. The permit does not require Powertech to locate and properly abandon historic drillholes **before** conducting the tests for the wellfield data packages. UIC regs have provisions allowing operation even if they can't locate and properly plug historic drillholes.

License condition the ASLB added: *Prior to conducting tests for a wellfield data package, the licensee will attempt to locate and properly abandon all historic drill holes located within the perimeter well ring for the wellfield. The licensee will document, and provide to the NRC, such efforts to identify and properly abandon all drill holes in the wellfield data package.*

Worded a little differently in the Commission decision: *requires Powertech to locate and properly abandon unplugged boreholes within each wellfield prior to operations.*

a. If:
    i. well pump test results indicate the presence of a breach in confinement that the Permittee cannot precisely locate in order to perform corrective action or cannot eliminate through the application of best available technology; and
    ii. the Permittee proposes operational controls and monitoring as the corrective action plan, the Director may require the Permittee to perform groundwater modeling or additional pump testing to demonstrate that the wellfield design and monitoring systems are sufficient to control and detect any potential excursions before issuing any Authorization to Inject.